

California Energy Action Plan

Goal II – *Accelerate* the State's Goal for Renewable Resources

- 1. California's Renewables Portfolio Standard**
- 2. California's Solar Inventory**
- 3. Solar on State Facilities Solicitation**

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RPS Background

- SB 1078 (Sher, 2002): 20% of retail sales from renewables by 2017
- RPS implemented jointly by CPUC/CEC
- 2003 Joint-Agency *Energy Action Plan* recommended accelerating target to 2010
- CEC *Integrated Energy Policy Report* recommends more ambitious goal for post-2010

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CEC-CPUC RPS Collaboration

CEC ROLE

- Certify eligible resources
- Establish criteria for “incremental” output from existing geothermal facilities
- Supplemental Energy Payments
- Accounting system to track and verify RPS compliance

CPUC ROLE

- MPR methodology
- Least-cost-best-fit process
- Rules for flexible compliance
- Standard contract T & Cs
- IOU procurement plans, baselines and targets
- Approve or reject proposed contracts
- Ensure RPS competitiveness
- Define rules for ESPs & Community Choice Aggregators

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Energy Commission's RPS Implementation

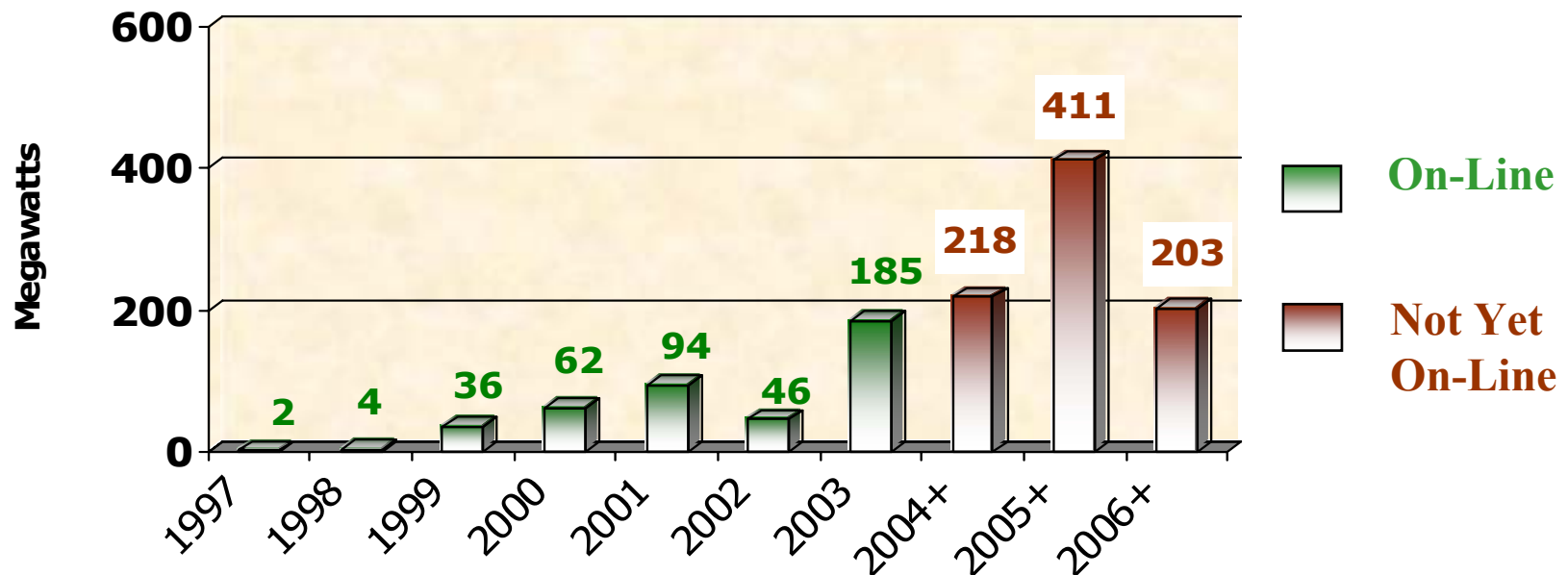
- Adopted Guidebooks in 2004:
 - ***Renewable Portfolio Standard Eligibility Guidebook***
 - Describes the criteria and process for certifying renewables as eligible for California's RPS and Supplemental Energy Payments (SEPs); describes RPS tracking systems
 - ***New Renewable Facilities Program Guidebook***
 - Describes the requirements applicants must satisfy to receive SEPs
 - ***Overall Program Guidebook for the Renewable Energy Program***
 - Describes how the Renewable Energy Program will be administered
- Began certifying facilities eligible for RPS – June 2004

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New Renewables from the Renewable Energy Program

- New renewable projects online total 429 MW of capacity.
- More than half of the capacity (52%) from the participating new renewable projects is on-line.

On-Line Timeline by Capacity



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Renewables Procurement

- April 2004 — The CPUC opened its RPS proceeding
 - The CPUC stated its commitment to achieving the Joint Agency Energy Action Plan's 20% RPS goal by 2010
 - The proceeding established the 2003 baseline of RPS-eligible resources in each utility's portfolio

2003 RPS Baseline

SDG&E	1.8%
SCE	17%
PG&E	12.3%

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Renewables Procurement (cont.)

- June 2004 — The CPUC adopted four Decisions that advance goal of accelerated RPS procurement:
 - Set the Standard Contract Terms and Conditions for RPS procurement (D.04-06-014)
 - Established the Market Price Referent (MPR) methodology for evaluating RPS bids (D.04-06-015)
 - Adopted methodology for calculating transmission costs associated with new renewable development (D.04-06-013)
 - Established a process for planning and building the first phase of Tehachapi transmission upgrades (D.04-06-010)

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Renewables Procurement (cont.)

- Standard Contract Terms Decision sets 2004 procurement targets for IOUs

2004 Annual Procurement Targets

SDG&E	2.5%
SCE	18.2%
PG&E	13.2%

Renewables Procurement (cont.)

- July 2004 CPUC adopted Least-Cost Best-Fit (LCBF) Decision
 - This decision concludes Phase 1 – enables IOUs to issue July 2004 solicitation.
 - Identifies how utilities should evaluate and rank RPS bids they receive
 - Provides milestones and schedule for 2004 RFO solicitation
 - Outlines contract approval process

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Renewables Procurement (cont.)

- PG&E and SDG&E issued 2004 RPS Requests for Offers (RFOs) between July 1st and July 15th
 - Edison did not issue 2004 RPS solicitation – it is waiting for interim procurement negotiations to conclude
 - IOUs will have short list of bidders ready by mid-October
 - Once IOU short lists are developed CPUC will calculate and release Market Price Referent (MPR)
 - IOUs will file contract advice letters with CPUC by Dec 2004

Renewables Procurement (cont.)

- CPUC has started Phase 2 of RPS Proceeding
 - Sept. 2004 CPUC issued RPS Distributed Generation (DG) Ruling asking for comments on participation of DG resources in the RPS program
 - CPUC will issue another ruling Sept 2004 – it is expected that ruling will address outstanding RPS issues:
 - Refinement of Market Price Referent methodology
 - Participation of small/multi-jurisdictional electric utilities, ESPs, and CCAs in the RPS program, etc.

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Western Renewable Energy Generation Information System: WREGIS

- WREGIS is a database of information and a forum for data exchange. WREGIS will:
 - Issue WREGIS Certificates
 - Prevent double counting
 - Achieve economies of scale
 - Allow California to meet its legislative requirements
 - Facilitate voluntary renewable energy credit trading throughout Western Electricity Coordinating Council (WECC) region
- July 2004 – Western Electricity Coordinating Council Board approved housing WREGIS
- June - Dec 2005 – WREGIS system developed and operational

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RPS Integration Cost Analysis Timeline

Phase I

- Develop integration costs analysis methodologies
- Apply methodology to a one year analysis of existing renewable and non-renewable generation in California

February 2004 Workshop: Presentation & discussion of methodology, results and findings; adoption of Phase I report ✓

April 2004 Wind & geothermal generator technology attribute studies completed; results to be incorporated into Phase III process development ✓

Phase II

- Identify and evaluate generator attributes affecting integration costs (focus on wind and geothermal)

June 2004 Draft of integration cost methodologies & recommended process for analysis ✓

July 2004 Draft report sent to Utility Key Contacts ✓

Phase III

- **Finalize integration costs methodology and develop process for application in RPS bid ranking**
- **Coordinate with “Key Contacts” and solicit feedback**
- **Present findings in public workshops**
- **Finalize all reports with comments**

Sept 2004 Report being finalized for public release, review & comment

Continuing multi-year analysis to investigate result sensitivities

Workshop planned: public discussion of proposed process for conducting cost analysis to support future renewables procurement

Draft report of multi-year analysis results

Oct 2004 Workshop planned on multi-year analysis

RPS - Looking Forward

- Ensure adequate transmission system for new renewables development
- Establish RPS goals beyond 2010
- Develop rules for Electric Service Providers and Community Choice Aggregators
- Make SEPs available

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Inventory of California's Solar Programs

Incentives

California Public Utilities Commission

- **Self-Generation Incentive Program (SGIP)** – Rebates for the lesser of \$4.50 per Watt or 50% of project costs on systems sized 30kW to 1 MW (CPUC is considering revision of incentive levels to accommodate additional projects)
- **Solar Rate Incentives** – Net metered solar facilities are exempted from costs assessed on other electrical customers, such as standby charges, interconnection costs, and Department of Water Resources (DWR) surcharges Solar projects over 1 MW receive reduced charges or temporary exemptions
- **Simplified Interconnection Process** – standardized and streamlined the interconnection rules for solar PV installations

California Energy Commission

- **Emerging Renewables Program** – Rebates currently \$3.00 per Watt on systems up to 30 kW; Affordable Housing projects receive 25% higher than standard rebate
- **Zero Energy New Homes (ZENH)** – \$10 million solicitation to develop and implement lower cost ZENHs for California climates
- **Solar Schools Program** – Jointly funded with **California Power Authority (CPA)**, 30 schools received funding for 700 kW of PV (program closed 6/04)

Publicly-Owned Utilities – SMUD offers reduced pricing on PV systems, LADWP solar program; other municipal utilities offer PV incentives for their customers

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Inventory of California's Solar Programs (Cont)

Tax Benefits

- **Property Tax Exemption** - 100% of the value of a PV system is exempt from property taxation for active systems installed before January 1, 2006.
- **Deductions**
 - Publicly-owned utility customers can deduct 100% of interest on loans from their utility to purchase solar systems. Customers without access to such loans may be able to deduct interest from a home equity or improvement loan.
 - For 2004 and 2005, the lesser of \$4.50 per Watt or 7.5% of a project's cost can be deducted from a customer's personal or corporate tax liability, for systems up to 200 kW.
- **Loans** - Industrial customers can apply to the CPA for tax-exempt, below-market loans under its Industrial Development Bond program.

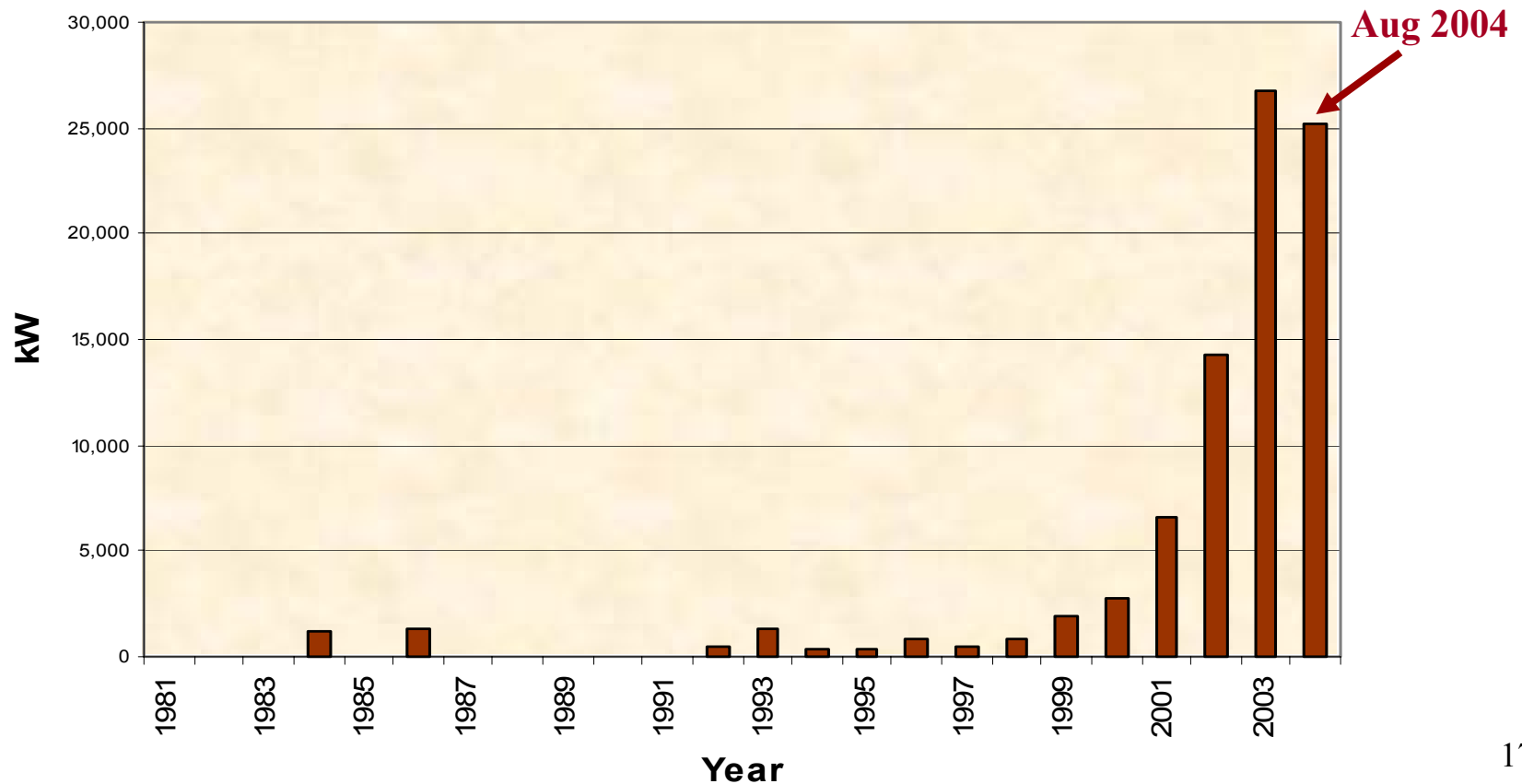
Regulations

- State buildings must incorporate solar power to the fullest extent feasible in existing structures by January 1, 2007, and where feasible on new facilities after December 31, 2002.
- Under the state's RPS Program, owners of solar facilities will be able to sell rights to their "renewableness" to an investor-owned utility. The terms and conditions of this credit program are currently under development at the CPUC.
- The state Solar Contractor Licensing program provides education and examinations to solar installers and contractors (license C-46).
- The Economic Development Department is creating solar installer certification program.
- State law prohibits restrictive covenants by homeowner's associations that would restrict the installation or use of solar facilities.

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California's Solar Inventory – Installed Capacity by Year

Statewide Grid-Connected PV Capacity
By Year



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California's Solar Inventory – Installed Capacity by Program

Statewide Grid-Connected PV Capacity

85,044 kW

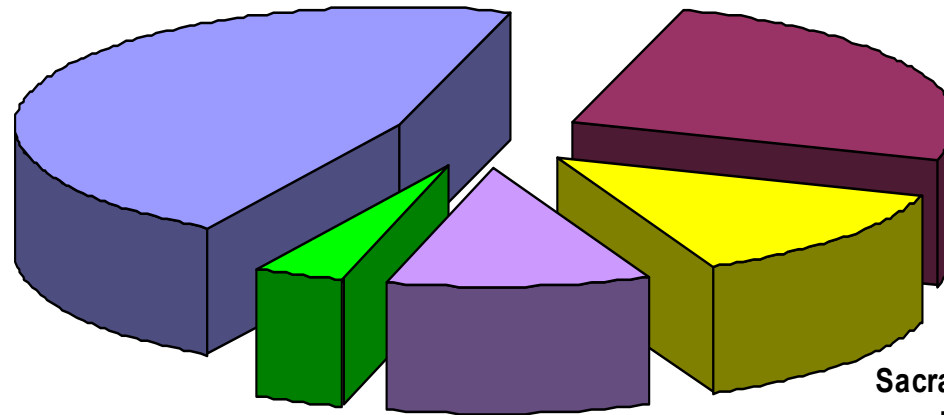
California Energy
Commission
47%

California Public Utilities
Commission
25%

The Rest of the State
4%

Los Angeles Department
of Water and Power
11%

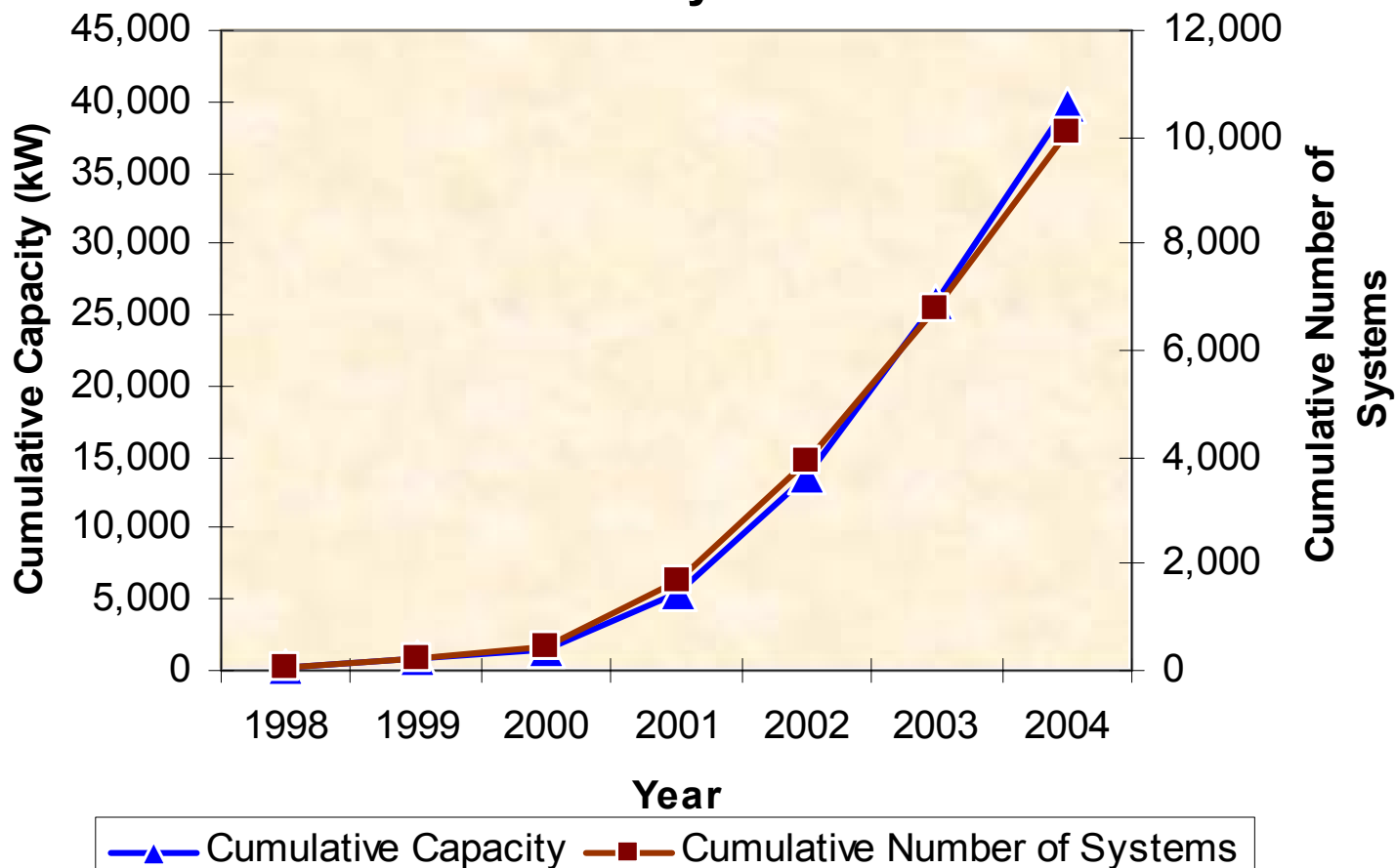
Sacramento Municipal
Utility District
13%



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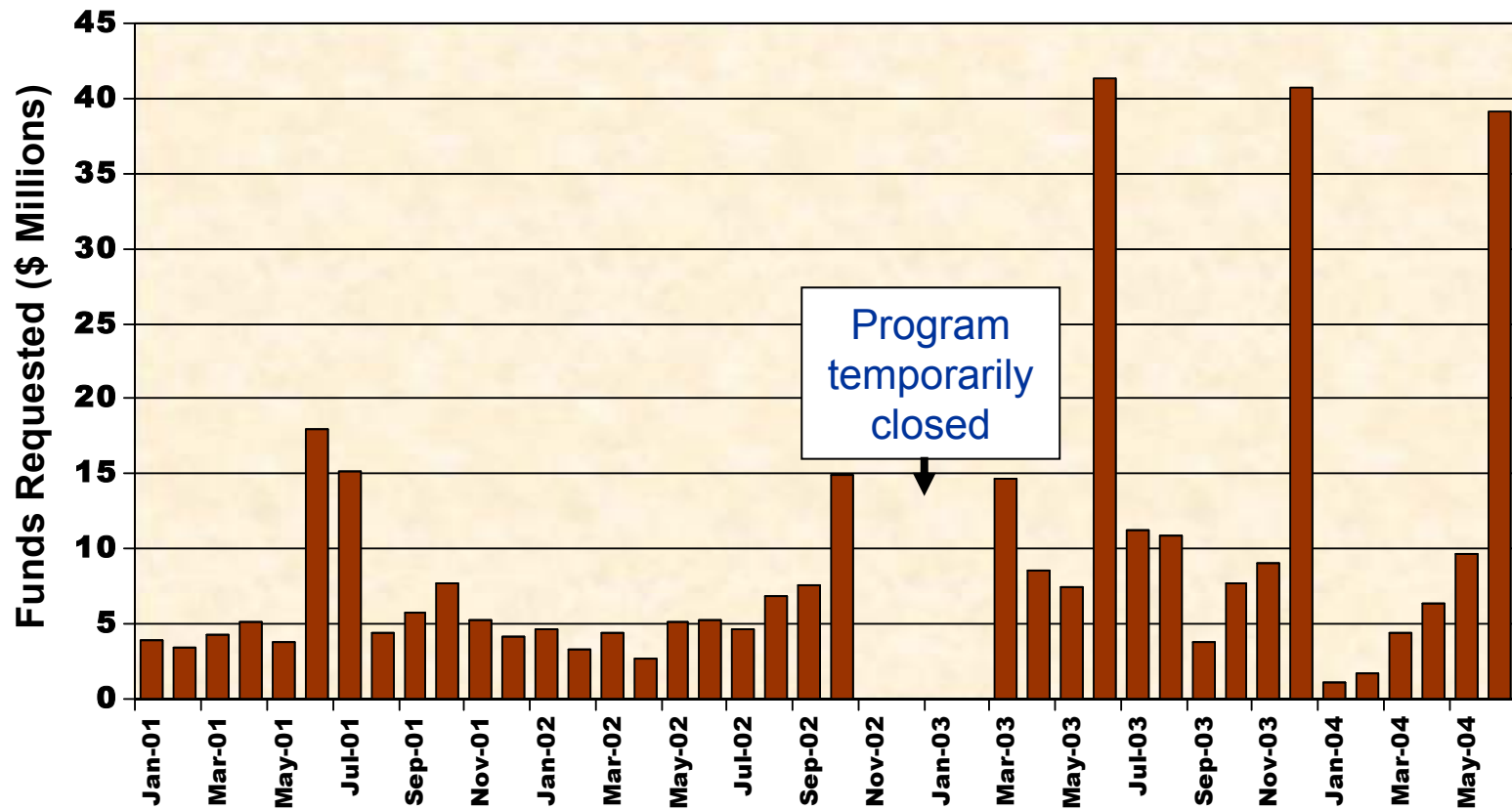
Emerging Renewables Program's Installed Solar Inventory

Number and Capacity of Grid-Connected PV Systems



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Emerging Renewables Program Funding Requested



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Solar on State Facilities

Huge Solar PV Potential at California's State Facilities

State Facilities	Near-Term Solar Potential (MW)
Corrections	25
State universities (UC, CSUS)	20-25
Caltrans	5-10
Office Buildings	3+
State Hospitals	2+
Near-Term State Potential	55-65

Local government & community college facilities offer 3-4 times this potential

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Barriers & Solution to State Facility Solar PV

■ Barriers

- High first cost, even after self-generation incentives
- Severely limited State capital (or appetite for increased debt)
- Perceived risk of dramatic electricity rate *reductions* or long-term solar performance issues that might not pay back investment

■ Solution: *New business model*

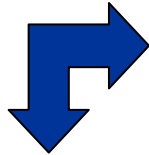
- Private party owns, finances and installs solar PV on State facility
- Sells solar power to host via long-term cents/kWh contract
- Power price guaranteed not to exceed utility tariff

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CPA-DGS Solar Power Purchase Program

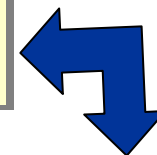
CPA-DGS

- Structure the program
- Market program to agencies
- Select solar providers
- Prepare solar purchase & site license agreements



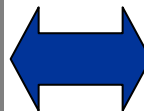
Host Site

- License roof or ground footprint to 3rd party
- Pay for solar energy output via long-term solar power purchase contract
- Pass any incentive to 3rd party



Third-Party

- Finalize feasible sites
- Design/Build
- Finance
- Maintain
- Bill host site for solar energy produced



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State Facility Solar Power Purchase Program: First Round Experience

State Offer

- 12 State sites of 200 kW - 1 MW, totaling 4+ MW
- Third party cost net of incentives, tax credits, depreciation
- IOU price to beat: 10-12 cents per average kWh
- 20 or 25 year contract options

Bidding

- 30 registered solar & financial bidders
- Bids from 2 teams for 7 sites (Caltrans, Corrections, CSUS, Mental Health), totaling 2.3 MW
- Price bids offered discounts of 30 to 35% from peak demand charges at some sites; 1% energy-only at Direct Access sites
- Offered choice of 20- or 25- year contracts

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State Facility Solar Power Purchase Program: Next Steps – Could take 5-6 mos.

Steps	Time
Host site acceptance of solar price	<1 month, most cases
CEQA review & compliance each site	1 month
Finalize & Sign Solar License Agreement & Solar Power Purchase Agreement	1 month
Detailed design review & construction approval process	1.5 - 2.5 months
Complete first site installation	1 month

- DGS handles Caltrans, Corrections, and Mental Health sites
- CSUS handles similar steps for its 4 sites